

① FILE - CONROCK
HEWITT
GW. INFO.

LOS ANGELES BY-PRODUCTS COMPANY

FINAL REPORT
ON
GAS PRODUCTION TESTING PROGRAM
AT
HEWITT LANDFILL

MAY 1977

Prepared By:
LOCKMAN & ASSOCIATES
249 East Pomona Boulevard
Monterey Park, California 91754
(213) 724-0250

TABLE OF CONTENTS

	<u>Page No.</u>
I. INTRODUCTION	1
II. CONCLUSIONS.	3
III. WELLS.	4
IV. TESTING AND GAS EXTRACTION EQUIPMENT	5
<u>APPENDIX</u>	
EXHIBIT 1 Map of Landfill Well Testing System.	6
EXHIBIT 2 Well Report Data	7
EXHIBIT 3 Well Testing Reports	8
EXHIBIT 4 Daily Results of Draw Down Tests	9

I. INTRODUCTION

Los Angeles By-Products operates Hewitt Landfill in North Hollywood at 7245 Laurel Canyon Boulevard (see Figure 1). The company commissioned Lockman & Associates to design, install, and test migration control equipment to reduce the methane gas on the 40 acre site to a maximum of 2-1/2% methane. Private property is located adjacent to the north and east sides of the landfill.

The program consisted of the following:

1. Installation of nine (9) gas production wells. Wells 1-3 were already present. A total of twelve (12) wells were used.
2. Operation of a portable gas extraction rig and burner.
3. Testing of the wells, and perimeter probes, to determine migration of methane gas from the landfill.

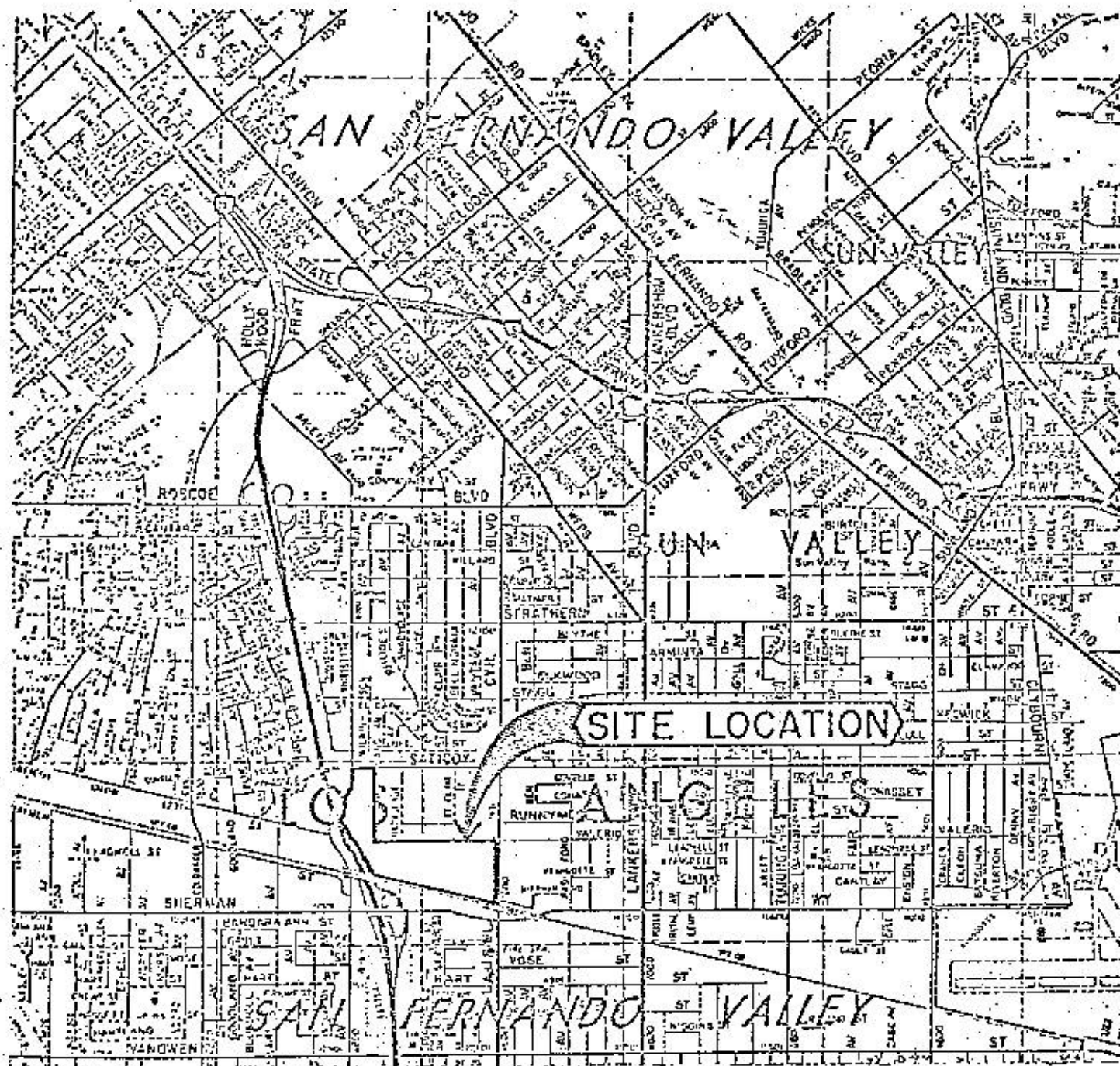


FIGURE 1
Location Map
For
Hewitt Sanitary Landfill.

II. CONCLUSIONS

1. Methane gas is being generated within the landfill, as evidenced by the levels of methane gas measured in the sampling probes on the property.
2. Migration of the gas can be stopped by operation of the twelve well migration control systems and burner unit installed.
3. The wells shall be pumped at a maximum rate of 250 cfm, with Wells 1, 2, and 3 producing a combined flow of 250 cfm. Initially, Wells 7-11 will not have to be pumped that hard. Parcel B is apparently not generating gas very quickly because it is still relatively young. After a few years, generation of gas in Parcel B should reach a level that will require the pumping of Wells 7-11 at 250 cfm. The desired rate of pumping these wells, upon project start-up, will be determined based on performance and cannot be accurately ascertained at this time.

III. WELLS

The wells are of two general types: nine of them are "gravel-packed", and three are driven wells. A detailed report of each well, its characteristics, and a map showing the approximate location of each well is given in the Appendix.

Wells 1-3 were installed in October of 1975, by first augering a 6-inch diameter hole, and then driving a 5-9/16" O.D. steel pipe into the drilled pilot hole. The bottom of Well No. 1 was placed 80 feet below the surface. Wells No. 2 and 3 were 40 feet deep. Wells 4-11 were drilled in April of this year. A 36-inch bore hole was drilled 2/3 of the distance to the bottom of the fill. A corresponding length of 6", Schedule 80, PVC pipe was placed in the hole. 1-1/2" crushed rock or gravel was used for packing materials around the perforated section of the PVC. A concrete sealing ring capped off the gravel. The rest of the bore hole was backfilled with clean earth and silt. In general, between 15 to 30 feet (depending on the well) of the casing at the bottom of the well was perforated. This is to prevent air from being drawn down into the extraction system. The perforations consist of 10-1/2" by 2" slots, separated vertically on 6-inch centers.

A summary on the effects each well had on the probes, both on Hewitt and R&I property, can be found in Exhibit 2 of the Appendix. This table is fairly self-explanatory. In general, each well was pumped until it caused the nearby probes to drop to zero. When the first two wells in Parcel A were tested, it took quite a bit of pumping to draw down the probes. This is attributed to the large amount of gas being generated there, which results in a large period of time to evacuate the accumulated gas before probes can be drawn down. Later on in Parcel B, the probes went to zero fairly quickly. For wells near the property line, probes on R&I property went to zero, which is indicative of a successful system.

IV. TESTING AND GAS EXTRACTION EQUIPMENT

The gas monitoring and control program initiated at the Hewitt Landfill utilized thirty-six (36) 7-foot perimeter probes and twelve (12) deep wells, shown in Exhibit 1 of the Appendix. This drawing is a modification of the design layout for the gas collection system showing the final location of the wells and probes after all drilling had been completed. This drawing differs from the original design in the location and number of wells. Wells 5, 6, and 7 have been re-located and Well 7A has been added. Well 5 was moved north and west because water was encountered while drilling at the original location. This water also had the effect of restricting the area of influence of Well 5 to points north of the water. Well 6 therefore had to be moved northwest to adequately cover the perimeter south of the water. This also led to Well 7A being added, since Well 6 would no longer have any influence east of the burner area. In addition, twenty-one (21) probes were placed on the adjacent property by the plaintiff's engineer (SCS). Eleven (11) of the 21 probes were placed 20 feet deep. These 20-foot deep probes are located along the perimeter of the property adjacent to the landfill. The other ten (10) probes were placed at a 10-foot depth.

Not all of the probes placed on R&I property can be shown because some are off the map. Those shown as proposed could not be drilled because of agricultural activities still taking place on the property.

A portable testing rig situated on a two wheel flatbed trailer was utilized. The rig consists of a landfill gas-fueled Waukesha reciprocating engine, driving a Hauck centrifugal blower. The gas was fed into a flare set up about 30 feet from the trailer. The rig was set up at nine (9) locations in the landfill, as shown in the Appendix. The engine was run at a speed of 1450 rpm. The Hauck blower was run at a speed of approximately 3700 rpm. Gas quantities were controlled by means of a butterfly valve in the outlet line from the blower to the flare. For sampling purposes, a Mine Safety Appliances, Model 53 Gascope, was used, providing direct methane-in-air concentrations. The results of the pumping of each well is presented in the Well Reports shown in Exhibit 3 in the Appendix. This Report provides sufficient information to completely characterize the well. The velocity head indicates the measured difference between dynamic head and static head and the discharge velocity measurement provides a check on the flow rate. In general, the wells drew much more easily than anticipated. The design called for up to 8" of wellhead vacuum for a flow rate of 250 cfm. The measured wellhead vacuum was lower than this in all but one well. This indicates a higher landfill permeability and increases the system safety factor.

The actual field test data taken during the well testing is presented in Exhibit 4 in the Appendix.